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EXAMINER

ZERVIGON, RUDY

ART UNIT PAPER NUMBER

1763

DATE MAILED: 11/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/814,258	Applicant(s) ITO, TAKASHI	
	Examiner Rudy Zervigon	Art Unit 1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 September 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 11-18 and 20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10, 19 and 21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. This application contains claims 11-18, and 20 drawn to an invention nonelected with traverse in Paper No. January 31, 2006. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

### ***Claim Rejections - 35 USC § 102***

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-7, 10, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Fairbairn; Kevin et al. (US 5838121 A). Fairbairn teaches a processing apparatus (Figure 4, 19, and 24; - see common "106"; column 4, lines 35-55), comprising: a transfer chamber (104; Figure 4; column 4, lines 35-55); a plurality of processing chambers (106; Figure 4, 19, and 24; - see common "106"; column 4, lines 35-55) for processing therein a substrate ("wafer"; throughout) to be processed, the processing chambers (106; Figure 4, 19, and 24; - see common "106"; column 4, lines 35-55) being coupled to the transfer chamber (104; Figure 4; column 4, lines 35-55); a number of electrostatic chucks ("pedestal 628"; Figure 19; column 14, lines 50-55; column 12; line 15) which are provided in the processing chambers (106; Figure 4, 19, and 24; - see common "106"; column 4, lines 35-55), to electrostatically adsorb the substrate ("wafer"; throughout) to be processed thereto; a transfer mechanism (500; Figure 15; column 8, line 53 - column 9, line 4) installed in the transfer chamber (104; Figure 4; column 4, lines 35-

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55) to transfer the substrate ("wafer"; throughout) to be processed between the processing chambers (106; Figure 4, 19, and 24; - see common "106"; column 4, lines 35-55) and the transfer chamber (104; Figure 4; column 4, lines 35-55); and a monatomic nitrogen (column 20, lines 12-13) atom supply unit (800; Figure 23,24; column 18, lines 18-40) for providing dissociated monatomic nitrogen (column 20, lines 12-13) atoms in the processing chambers (106; Figure 4, 19, and 24; - see common "106"; column 4, lines 35-55), wherein the monatomic nitrogen (column 20, lines 12-13) atoms are supplied into one of the processing chambers (106; Figure 4, 19, and 24; - see common "106"; column 4, lines 35-55) after finishing processing the substrate therein to remove charge on an electrostatic chuck ("pedestal 628"; Figure 19; column 14, lines 50-55; column 12; line 15) provided in said one processing chamber (106; Figure 4, 19, and 24; - see common "106"; column 4, lines 35-55), as claimed by claim 1. Applicant's claim requirements of "after finishing processing the substrate therein to remove charge on an electrostatic chuck" are claim requirements of intended use in the pending apparatus claims. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP2111.02).

Fairbairn further teaches:

- i. A processing apparatus (Figure 4, 19, and 24; - see common "106"; column 4, lines 35-55), comprising: a transfer chamber (104; Figure 4; column 4, lines 35-55); a first processing chamber (first 106; Figure 4, 19, and 24; - see common "106"; column 4, lines 35-55) coupled to the transfer chamber (104; Figure 4; column 4, lines 35-55), the first processing chamber (first 106; Figure 4, 19, and 24; - see common "106"; column 4, lines 35-55) performing therein a first process on a substrate ("wafer"; throughout) to be processed; a second processing chamber (second 106; Figure 4, 19, and 24; - see common "106"; column 4, lines 35-55) coupled to the transfer chamber (104; Figure 4; column 4, lines 35-55), the second processing chamber (second 106; Figure 4, 19, and 24; - see common "106"; column 4, lines 35-55) performing therein a second process on the substrate ("wafer"; throughout) to be processed; a transfer mechanism (500; Figure 15; column 8, line 53 - column 9, line 4) installed in the transfer chamber (104; Figure 4; column 4, lines 35-55) for sequentially transferring the substrate ("wafer"; throughout) to be processed into the first and second processing chamber; electrostatic chucks ("pedestal 628"; Figure 19; column 14, lines 50-55; column 12; line 15) provided in the first and the second processing chambers (106; Figure 4, 19, and 24; - see common "106"; column 4, lines 35-55), the electrostatic chucks ("pedestal 628"; Figure 19; column 14, lines 50-55; column 12; line 15) electrostatically adsorbing thereto the substrate ("wafer"; throughout) to be processed; and a monatomic nitrogen (column 20, lines 12-13) atom supply unit (800; Figure 23,24; column 18, lines 18-40) for providing dissociated monatomic nitrogen (column 20, lines 12-13) atoms in the first and second processing chamber (second 106; Figure 4, 19, and 24; - see common "106"; column 4, lines 35-55), wherein

the monatomic nitrogen (column 20, lines 12-13) atoms are supplied into the first processing chamber (106; Figure 4, 19, and 24; - see common "106"; column 4, lines 35-55) after finishing processing the substrate therein to remove charge on an electrostatic chuck ("pedestal 628"; Figure 19; column 14, lines 50-55; column 12; line 15) provided in the first processing chamber (106; Figure 4, 19, and 24; - see common "106"; column 4, lines 35-55), as claimed by claim 2. Applicant's claim requirements of "after finishing processing the substrate therein to remove charge on an electrostatic chuck" are claim requirements of intended use in the pending apparatus claims. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP 2111.02).

- ii. The processing apparatus (Figure 4, 19, and 24; - see common "106"; column 4, lines 35-55) of claim 1, wherein the monatomic nitrogen (column 20, lines 12-13) atom supply unit (800; Figure 23, 24; column 18, lines 18-40) supplies the dissociated monatomic nitrogen (column 20, lines 12-13) atoms to a close proximity of the electrostatic chucks ("pedestal 628"; Figure 19; column 14, lines 50-55; column 12; line 15), as claimed by claim 3

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- iii. The processing apparatus (Figure 4, 19, and 24; - see common "106"; column 4, lines 35-55) of claim 2, wherein the monatomic nitrogen (column 20, lines 12-13) atom supply unit (800; Figure 23,24; column 18, lines 18-40) supplies the dissociated monatomic nitrogen (column 20, lines 12-13) atoms to a close proximity of the electrostatic chucks ("pedestal 628"; Figure 19; column 14, lines 50-55; column 12; line 15), as claimed by claim 4
- iv. The processing apparatus (Figure 4, 19, and 24; - see common "106"; column 4, lines 35-55) of claim 2, wherein the monatomic nitrogen (column 20, lines 12-13) atom supply unit (800; Figure 23,24; column 18, lines 18-40) provides the dissociated monatomic nitrogen (column 20, lines 12-13) atoms in the transfer chamber (104; Figure 4; column 4, lines 35-55), as claimed by claim 5. Applicant's claim requirement is an intended use claim requirement. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP 2111.02). When the structure recited in the reference is substantially identical to that of the claims, claimed properties or functions are presumed to be inherent (In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977); MPEP 2112.01).

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- v. The processing apparatus (Figure 4, 19, and 24; - see common "106"; column 4, lines 35-55) of claim 2, further comprising a controller (810; Figure 24; column 18, lines 20-25) for controlling a supply timing of the dissociated monatomic nitrogen (column 20, lines 12-13) atoms from the monatomic nitrogen (column 20, lines 12-13) atom supply unit (800; Figure 23,24; column 18, lines 18-40), as claimed by claim 6
- vi. The processing apparatus (Figure 4, 19, and 24; - see common "106"; column 4, lines 35-55) of claim 2, wherein the monatomic nitrogen (column 20, lines 12-13) atom supply unit (800; Figure 23,24; column 18, lines 18-40) includes a pipe (812; Figure 24; column 18, lines 20-25) communicating with the processing chambers (106; Figure 4, 19, and 24; - see common "106"; column 4, lines 35-55), an N<sub>2</sub> gas supply source (804/814; Figure 24; column 18, lines 20-25) for providing an N<sub>2</sub> gas through the pipe (812; Figure 24; column 18, lines 20-25), and an energy supply unit (808; Figure 23,24; column 18, lines 18-40) for applying energy to the N<sub>2</sub> gas in the pipe (812; Figure 24; column 18, lines 20-25) or in the processing chambers (106; Figure 4, 19, and 24; - see common "106"; column 4, lines 35-55) to convert the N<sub>2</sub> gas into the dissociated monatomic nitrogen (column 20, lines 12-13) atoms, as claimed by claim 7
- vii. The processing apparatus (Figure 4, 19, and 24; - see common "106"; column 4, lines 35-55) of claims 6, wherein the energy supply unit (808; Figure 23,24; column 18, lines 18-40) applies energy which is higher than the dissociation energy of the N<sub>2</sub> gas and lower than the ionization energy of the N<sub>2</sub> gas, to the N<sub>2</sub> gas, as claimed by claim 10
- viii. A processing apparatus (Figure 4, 19, and 24; - see common "106"; column 4, lines 35-55), comprising: a processing chamber for processing therein a substrate ("wafer";



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throughout) to be processed; a transfer mechanism (500; Figure 15; column 8, line 53 - column 9, line 4) for transferring the substrate to be processed into the processing chamber (106; Figure 4, 19, and 24; - see common "106"; column 4, lines 35-55); an electrostatic chuck ("pedestal 628"; Figure 19; column 14, lines 50-55; column 12; line 15) installed in the processing chamber (106; Figure 4, 19, and 24; - see common "106"; column 4, lines 35-55), for adsorbing the substrate ("wafer"; throughout) to be process thereto; and a monatomic N atom supply unit (800; Figure 23,24; column 18, lines 18-40) for providing dissociated monatomic N atoms in the processing chamber (106; Figure 4, 19, and 24; - see common "106"; column 4, lines 35-55) wherein the monatomic N atoms are provided in the processing chamber (106; Figure 4, 19, and 24; - see common "106"; column 4, lines 35-55) after finishing processing the substrate therein, as claimed by claim 19. Applicant's claim requirements of "monatomic N atoms are provided in the processing chamber after finishing processing the substrate therein" are claim requirements of intended use in the pending apparatus claims. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP2111.02).

***Claim Rejections - 35 USC § 103***

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 8, 9, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fairbairn; Kevin et al. (US 5838121 A) in view of Lee; Chung J. et al. (US 6086679 A). Fairbairn is discussed above.

Fairbairn further teaches a processing apparatus (Figure 4, 19, and 24; - see common “106”; column 4, lines 35-55), which includes a processing chamber (106; Figure 4, 19, and 24; - see common “106”; column 4, lines 35-55) for processing a substrate (“wafer”; throughout) to be processed and an electrostatic chuck (“pedestal 628”; Figure 19; column 14, lines 50-55; column 12; line 15), installed in the processing chamber (106; Figure 4, 19, and 24; - see common “106”; column 4, lines 35-55), for adsorbing the substrate (“wafer”; throughout) to be processed thereto, comprising: - claim 21

- a. means for transferring the substrate (“wafer”; throughout) to be processed into the processing chamber – claim 21. Support for this portion of claim 21 is found in section [0031]. Specifically, the specification teaches “wafer transfer mechanism 6”. Fairbairn teaches a wafer transfer mechanism 500. As such, Fairbairn teaches an equivalent apparatus that performs the function of transferring wafers. As a result, Fairbairn’s prior art elements of 500; Figure 15; column 8, line 53 - column 9, line 4 for transferring wafers performs the identical function of transferring wafers in substantially the same way, and produces substantially the same results as the corresponding elements disclosed in the specification (MPEP 2183).

- b. means for adsorbing the substrate (“wafer”; throughout) to be processed to the electrostatic chuck – claim 21. Support for this portion of claim 21 is found in section [0010]. Specifically, the specification teaches “the electrostatic chucks electrostatically adsorbing thereto the substrate to be processed”. Fairbairn teaches an electrostatic chuck (“pedestal 628”; Figure 19; column 14, lines 50-55; column 12; line 15). As such, Fairbairn teaches an equivalent apparatus that performs the function of “adsorbing the substrate”. As a result, Fairbairn’s prior art elements of 628 for “adsorbing the substrate” perform the identical function of “adsorbing the substrate” in substantially the same way, and produces substantially the same results as the corresponding elements disclosed in the specification (MPEP 2183).

Fairbairn does not teach:

- i. The processing apparatus (Figure 4, 19, and 24; - see common “106”; column 4, lines 35-55) of claim 7, wherein the energy supply unit (808; Figure 23,24; column 18, lines 18-40) has an ultraviolet irradiation unit for irradiating ultraviolet ray to the N<sub>2</sub> gas, as claimed by claim 8
- ii. The processing apparatus (Figure 4, 19, and 24; - see common “106”; column 4, lines 35-55) of claim 7, wherein the pipe (812; Figure 24; column 18, lines 20-25) has a dielectric portion, and the energy supply unit (808; Figure 23,24; column 18, lines 18-40) has an induction coil wound around the dielectric portion and a high frequency power supply for applying a high frequency to the induction coil, as claimed by claim 9

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- iii. means for providing dissociated monatomic N atoms in the processing chamber, wherein the monatomic N atoms are provided in the processing chamber (106; Figure 4, 19, and 24; - see common “106”; column 4, lines 35-55) for processing the substrate (“wafer”; throughout) therein – claim 21

Lee teaches energy supply units as UV (426, Figure 4) and induction coil supply units (626, 628; Figure 6) wound a dielectric pipe (620; Figure 6). Means for providing dissociated monatomic N atoms in the processing chamber, wherein the monatomic N atoms are provided in the processing chamber (106; Figure 4, 19, and 24; - see common “106”; column 4, lines 35-55) for processing the substrate (“wafer”; throughout) therein – claim 21. Support for this portion of claim 21 is found in section [0061]. Specifically, the specification teaches “In addition, an induction coil 96 is wound around the gas pipe 93, and the high frequency power is applied from a high frequency power supply 97 to the induction coil 96.”. Lee teaches an induction coil 628 is wound around the gas pipe 620, and the high frequency power is applied from a high frequency power supply 626 to the induction coil 628. As such, Lee teaches an equivalent apparatus that performs the function of means for providing dissociated gas (gas identity is intended use). As a result, Fairbairn’s prior art elements of 628, 620, and 626 for providing dissociated gas (gas identity is intended use) perform the identical function of providing dissociated gas (gas identity is intended use) in substantially the same way, and produces substantially the same results as the corresponding elements disclosed in the specification (MPEP 2183).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for Fairbairn to use alternate and equivalent means for plasma generation as taught by Lee.

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Motivation for Fairbairn to use alternate and equivalent means for plasma generation as taught by Lee (column 22, line 58 – column 25, line 50).

*Response to Arguments*

6. Applicant's arguments filed September 18, 2006 have been fully considered but they are not persuasive.

7. Applicant states:

“

However, Fairbairn fails to teach or suggest each feature of the claimed invention. First, Fairbairn fails to teach or suggest a processing apparatus that removes charge on an electrostatic chuck. Fairbairn describes a remote clean module that is used to remove deposited material from an inner surface of the chamber, but Fairbairn is silent regarding the removal of charge on an electrostatic chuck.

“

In response, the Examiner has emphasized above that the feature from which Applicant relies as being a patentable distinction is a feature of intended use of the pending apparatus claims. In particular, because Fairbairn is cited as teaching a monatomic nitrogen (column 20, lines 12-13) atom supply unit (800; Figure 23,24; column 18, lines 18-40) for providing dissociated monatomic nitrogen (column 20, lines 12-13) atoms in the processing chambers (106; Figure 4, 19, and 24; - see common “106”; column 4, lines 35-55) and the added structural requirement of electrostatic chucks (“pedestal 628”; Figure 19; column 14, lines 50-55; column 12; line 15). As a result, when the structure recited in the reference is substantially identical to that of the claims,

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claimed properties or functions are presumed to be inherent (In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977); MPEP 2112.01).

Applicant states:

“

According to Fairbain, if NF<sub>3</sub> is selected as the precursor gas, a nitrogen radical (N\*) is produced in the remote activation chamber 806. However, Fairbairn indicates that the nitrogen radical is short lived, and therefore will not survive a long transfer from the remote activation chamber 806 to the processing chamber. Accordingly, it is clear that the nitrogen radical cannot arrive at the processing chamber of Fairbain.

“

In response, the Examiner acknowledges that Fairbain indeed discusses a “short lived” monatomic nitrogen radical. However, Fairbain also states that “The nitrogen radical will *typically* not survive a long transfer ...” and more importantly “...however, as in the case of conventional cleaning techniques, *there is no easy way to eliminate the nitrogen radicals that are produced.*”. As a result, the Examiner’s read on Fairbain suggests the presence of monatomic nitrogen radicals with Fairbain’s electrostatic chucks (“pedestal 628”; Figure 19; column 14, lines 50-55; column 12; line 15).

Applicant states:

“

However, in the transport polymerization systems described in Lee an organic compound (not nitrogen) is dissociated, and the non-nitrogen organic compound is then deposited onto a surface of a wafer. Accordingly, Lee does not teach or suggest an energy supply unit for supplying

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dissociated monatomic nitrogen atoms to remove charge on an electrostatic chuck. Further, since Lee describes only deposition systems (e.g., a transport polymerization system or a chemical vapor deposition (CVD) system), Lee does not provide any motivation for combining the features of Lee with the remote clean module of Fairbairn.

“

In response, the Examiner's Application of Lee *is not* for his lack of teaching a supplying dissociated monatomic nitrogen atoms. Indeed, the Examiner's defense of Fairbairn above wholly supports Fairbairn as teaching this limitation.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the Examiner believes that the above combination provides teaching, suggestion, and motivation for the combination found either in the references themselves and in the knowledge generally available to one of ordinary skill in the art. In particular, motivation for Fairbairn to use alternate and equivalent means for plasma generation as taught by Lee (column 22, line 58 – column 25, line 50).

***Conclusion***

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (571) 272-1442. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official fax phone number for the 1763 art unit is (571) 273-8300. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (571) 272-1700. If the examiner can not be reached please contact the examiner's supervisor, Parviz Hassanzadeh, at (571) 272-1435.



*Rudy Zervigon*  
11/25/16